

Advance information is issued to advise Customers of new additions to the Plessey Semiconductors range which, nevertheless, still have 'pre-production' status. Details given may, therefore, change without notice although we would expect this performance data to be representative of 'full production' status product in most cases. Please contact your local Plessey Semiconductors Sales Office for details of current status.

MV23SC16

2048 x 8 ROM

The MV23SC16 is a high speed, low power 16384-bit Static Read-Only Memory, organised 2048 words by 8-bits and fabricated with the ISO-CMOS process.

A manufacturing mask stage, defined by the user, programs the 16384-bit non-volatile memory array and true/inverse polarity on each of the three chip select inputs CS1, CS2 and CS3. Bus-oriented systems are easily configured using the three-state outputs. In system development a standard EPROM (eg 2716) may be used and subsequently replaced by the MV23SC16 to minimise power supply requirements and production costs.

FEATURES

- Pin-Compatible with 2316/2716
- Fast Access Time (350ns)
- Fully Static - no Clock or Strobe
- Low Operating Power (100mW)
- Low Standby Power (100µW)
- Three Programmable Chip Selects
- Three-State Outputs
- Fully TTL-Compatible
- Operating Voltage Range 3V to 7V
- Supplied in 24-pin Ceramic DIL (DG) Package

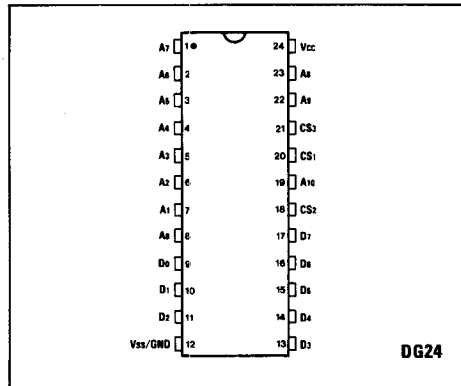


Fig.1 Pin connections (top view)

PIN NAMES

A ₀ -A ₁₀	Address inputs
D ₀ -D ₇	Data outputs
CS ₁ -CS ₃	Programmable chip select inputs
V _{cc}	Positive supply voltage
V _{ss} /GND	Ground

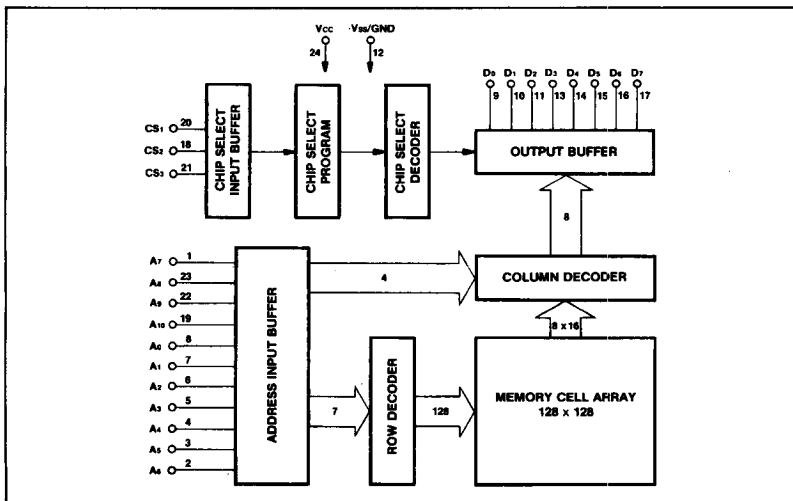


Fig.2 Block diagram

RECOMMENDED OPERATING CONDITIONS

Characteristic	Symbol	Value			Unit
		Min.	Typ.	Max.	
Supply voltage	V _{CC}	3	5	7	V
High level output current	I _{OH}		-10		mA
Low level output current	I _{OL}		10		mA
Operating free-air temperature	T _{amb}	0		70	°C

Note 1. Voltage values are with respect to V_{SS}/GND.

ELECTRICAL CHARACTERISTICS

Test conditions (unless otherwise stated):

T_{amb} = 0°C to +70°C V_{CC} = +4.75V to +5.25V

Characteristic	Symbol	Value			Unit	Test Conditions
		Min.	Typ.	Max.		
Operating supply voltage range	V _{CC}	3.0	5.0	7.0	V	V _{IN} = V _{IH} or V _{IL} , outputs O/C V _{IN} = GND or V _{CC} , f = 1MHz, duty 50% Deselected, V _{IN} = GND or V _{CC} I _{OH} = -400µA I _{OL} = 2.0mA V _{IN} = GND to V _{CC} Deselected, V _{OUT} = GND to V _{CC} V _{IN} = 0V, f = 1MHz V _{OUT} = 0V, f = 1MHz
Operating supply current	I _{CC}		24		mA	
Average operating supply current	I _{CCA}		10		mA	
Standby supply current	I _{CCS}		20		µA	
High level input voltage	V _{IH}	2.0			V	
Low level input voltage	V _{IL}			0.8	V	
High level output voltage	V _{OH}	2.4			V	
Low level output voltage	V _{OL}			0.4	V	
Input leakage current	I _I	-10		10	µA	
Output leakage current	I _O	-10		10	µA	
Input capacitance	C _{IN}		5		pF	
Output capacitance	C _{OUT}		10		pF	

Note 2. All Typical values at T_{amb} = 25°C, V_{CC} = 5V.

SWITCHING CHARACTERISTICS

Test conditions (unless otherwise stated):

T_{amb} = 0°C to +70°C, V_{CC} = +4.75V to +5.25V, Output Load = 1 TTL Gate and 100pF

Characteristic	Symbol	Value			Unit
		Min.	Typ.	Max.	
Chip Select access time	t _{CS}			150	ns
Data Hold time from Deselect	t _{DF}	10		100	ns
Address access time	t _A			350	ns
Data Hold time from address change	t _{DH}	10			ns

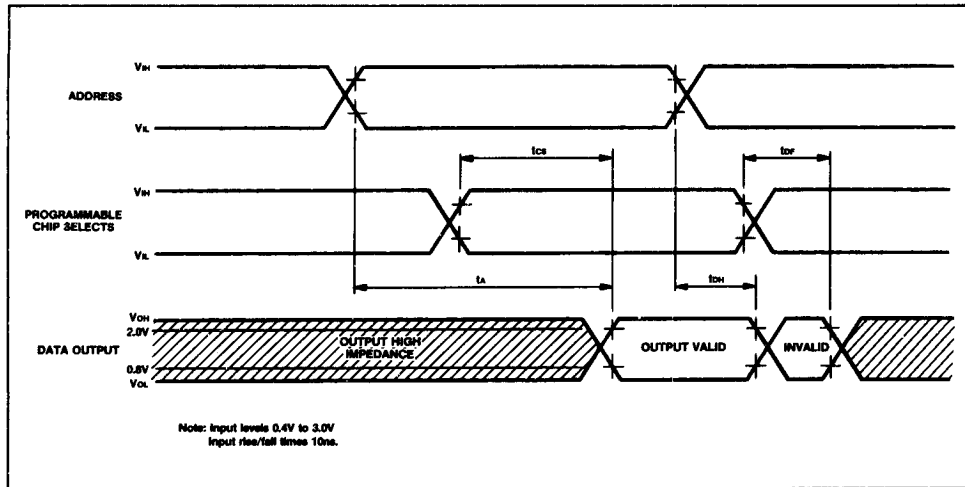


Fig.3 Switching time waveforms

ABSOLUTE MAXIMUM RATINGS

The absolute maximum ratings are limiting values above which life may be shortened or specified parameters may be degraded.

Parameter	Symbol	Limit	Unit
Supply voltage	V _{cc}	-0.5 to 7.0	V
Input voltage	V _i	-0.3 to V _{cc} + 0.3	V
Output current per O/P	I _o	±20	mA
Storage temperature	T _s	-65 to 150	°C
Operating temperature	T _{amb}	-40 to +85	°C
Package power dissipation	P	450	mW

CUSTOM PROGRAMMING

Both the 16384-bit ROM content and the Active Logic Polarity for each of Chip Selects CS1, CS2 and CS3 must be specified during manufacture of the MV23SC16 ROM.

Customer Definition of ROM Content

Plessey Semiconductors prefers the following:

- (a) Customer-programmed 2K x 8 EPROM/EEPROM 24 pin devices, supplied in duplicate. (eg 2516, 2716, 48016, 2816)
- (b) 2316 ROM device
- (c) As (a) but unambiguously labelled pairs of 1K x 8 devices. (eg 2708, 2758, 3008, 27C58)

The following is also acceptable:

Magnetic Tape - 9 track 800 or 1600 bpi with data in the Motorola/AMI ASCII Hexadecimal Record (S-code) format. Maximum byte count per record of nineteen (hex 13), corresponding to a maximum of sixteen (hex 10) data bytes per record, is preferred, but not essential.

Customer Definition of Chip Select Polarity

The customer should specify, by letter carrying authorising signature and management function, or on an official purchase order, the following:

Pin Number	20	18	21
CHIP SELECT	CS1	CS2	CS3
Active HIGH or LOW with respect to Vss/GND			

Plessey Semiconductors will add a unique suffix to the MV23SC16 designation when coding the packaged device, eg MV23SC16-012